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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,330	01/26/2001	Kenichi Ohta	35.C15056	5124

5514 7590 06/14/2005

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EXAMINER

THOMPSON, JAMES A

ART UNIT PAPER NUMBER

2624

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/769,330

Applicant(s)

OHTA, KENICHI

Examiner

James A. Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-8, 10-12 and 14-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see page 15, lines 9-14, filed 13 January 2005, with respect to the rejection of claim 16 under 35 USC §112, 2<sup>nd</sup> paragraph have been fully considered and are persuasive. The rejection of claim 16 under 35 USC §112, 2<sup>nd</sup> paragraph listed in items 2-3 of the previous office action, dated 03 September 2004, has been withdrawn.

2. Applicant's arguments filed 13 January 2005 have been fully considered but they are not persuasive.

Applicant's arguments are based on the amendments to the claims, and not the claims as previously filed. New grounds of rejection which are necessitated by the present amendments to the claims are given in detail below.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 7-8, 10-11, 15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810), Harrington (US Patent 5,953,464), and Seki (US Patent 5,838,839).

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**Regarding claims 1, 17 and 18:** Sakai discloses an image processing apparatus (figure 5 of Sakai). Further details of said apparatus are shown in figure 9 (column 3, lines 35-36 of Sakai), figures 24-26 (column 4, lines 7-14 of Sakai) and figure 32 of Sakai (column 4, lines 30-31 of Sakai).

Sakai further discloses input means (figure 32(65) and column 15, lines 13-17 of Sakai) for inputting image data (column 5, lines 27-30 of Sakai); means (figure 5(11) of Sakai) for obtaining flag data indicating an attribute (column 6, lines 15-18 of Sakai) of an image corresponding to the image data from the image data (figure 6 and column 6, lines 21-26 of Sakai); first pixel density converting means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the image data at a designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai); and second pixel density converting means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the flag data in accordance with the designated magnification using logical arithmetic operating processes of said flag values (figure 13(S36) and column 8, lines 57-62 of Sakai). The partial image, which includes the attribute (flag) data (figure 10C of Sakai), is displayed at a specified magnification (column 8, lines 57-62 of Sakai). Therefore, said flag data is converted in accordance with the designated magnification since said flag data is directly associated with said partial image data.

Sakai further discloses output means (figure 5(14) of Sakai) for making a process of the pixel density converted image data (column 5, lines 40-45 of Sakai) different every pixel in accordance with the flag data (column 5, lines 47-53 of Sakai)

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and outputting the processed image data (column 5, lines 40-41 of Sakai).

Said first pixel density converting means and said second pixel density converting means correspond to the respective portions of the physically embodied computer software, executed by the CPU (figure 32(61) and column 15, lines 17-20 of Sakai), that perform the functions of said first pixel density converting means and said second pixel density converting means.

Sakai does not disclose expressly that said flag data is generated by a generating means; that said image data input is color image data; and that said second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the designated magnification is reduction, and performs a processing using a nearest neighboring pixel of the target pixel when the designated magnification is enlargement.

Kanno discloses generating means (figure 1(10) of Kanno) for generating data indicative of the attribute of an image corresponding to the image data (column 6, lines 35-38 and lines 40-45 of Kanno); and that said image data is color image data (column 9, lines 51-54 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to process color image data and generate the data indicative of the attributes of an image, as taught by Kanno, said indicative data being the flag data taught by Sakai. The motivation for doing so would have been that the value of the parameter used to determine the feature of the image region can be used in determining the amount of correction

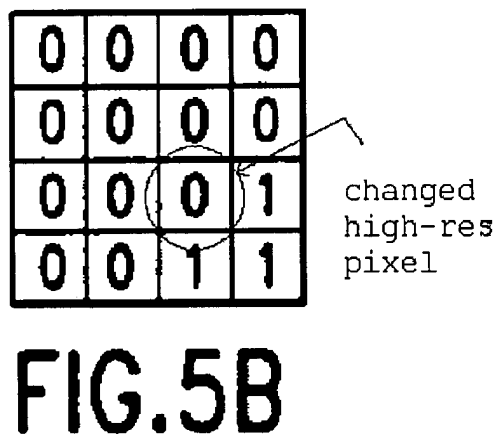
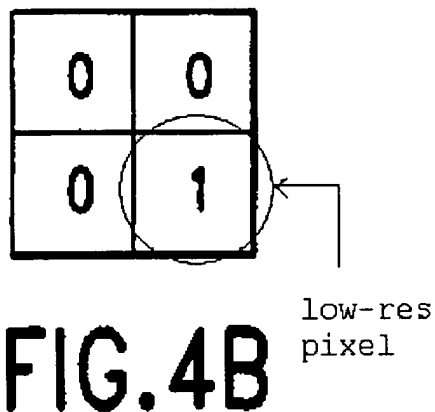
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required (column 6, lines 58-62 of Kanno). Therefore, it would have been obvious to combine Kanno with Sakai.

Sakai in view of Kanno does not disclose expressly that said second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the designated magnification is reduction, and performs a processing using a nearest neighboring pixel of the target pixel when the designated magnification is enlargement.

Harrington discloses performing a logical arithmetic operating process of flag values using a nearest neighboring pixel of the target pixel when the designated magnification is enlargement (figures 4a-4d; figures 5a-5d; and column 5, lines 2-5 of Harrington). The filling in operation (column 5, lines 2-5 of Harrington) is based on the value of a nearest neighboring pixel, such as demonstrated in figures 4a-4d and figures 5a-5d of Harrington. For example, in figure 4b of Harrington, the pixel in the bottom right corner has a value of "1" and the pixel in the top left corner has a value of "0". Thus, when the resolution is increased in figure 5b of Harrington, a "0" is placed for the top left pixel among the four pixels in the bottom right corner, as shown in the figure below.

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Sakai in view of Kanno is combinable with Harrington because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a nearest neighbor pixel when enlarging the magnification of a digital image, as taught by Harrington, using said second pixel density converting means taught by Sakai. The motivation for doing so would have been to help mitigate image artifacts, such as jagged edges (column 5, line 2 of Harrington).

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Therefore, it would have been obvious to combine Harrington with Sakai in view of Kanno.

Sakai in view of Kanno and Harrington does not disclose expressly that said second pixel density converting means performs a logical arithmetic operating process of flag values using a plurality of pixels near a target pixel when the designated magnification is reduction.

Seki discloses performing logical arithmetic processing using a plurality of pixels near a target pixel when the designated magnification is reduction (figure 2 and column 2, line 66 to column 3, line 3 of Seki).

Sakai in view of Kanno and Harrington is combinable with Seki because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a plurality of pixels near a target pixel when reducing image magnification, as taught by Seki, using said second pixel density converting means taught by Sakai. The suggestion for doing so would have been that the number of pixels are to be decreased for a lower magnification image and thus local neighborhood data must be used for a scaled-down image (column 2, lines 53-63 of Seki). Therefore, it would have been obvious to combine Seki with Sakai in view of Kanno and Harrington to obtain the invention as specified in claims 1, 17 and 18.

Further regarding claim 17: The apparatus of claim 1 performs the method of claim 17.

Further regarding claim 18: The apparatus of claim 1 performs processing using physically embodied computer software (column 15, lines 38-45 of Sakai) and thus performs the steps of the computer program of claim 18.



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**Further regarding claim 7:** Kanno discloses that said generating means generates the flag data (column 6, lines 40-45 of Kanno) on the basis of a change ( $\Delta D_{\max}$ ) in image data of a pixel near a target pixel (column 6, lines 35-40 of Kanno).

**Regarding claim 8:** Sakai in view of Kanno does not disclose expressly that said first pixel density converting means uses one of a linear interpolating method and bicubic spline interpolation.

Harrington discloses using linear interpolation for changing image resolution (column 4, lines 25-27 of Harrington).

Sakai in view of Kanno is combinable with Harrington because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use linear interpolation in said first pixel density converting means. The motivation for doing so would have been to reduce blocky artifacts (column 4, lines 18-21 of Harrington). Therefore, it would have been obvious to combine Harrington with Sakai in view of Kanno to obtain the invention as specified in claim 8.

**Regarding claim 10:** Sakai discloses that said output means makes a binarization process to the image data different in accordance with the flag data (column 8, lines 55-59 of Sakai).

**Regarding claim 11:** Sakai does not disclose expressly that, when said flag data is the character flag or figure flag, an error diffusion process is performed to the image data.

Kanno discloses performing error diffusion on image data when said image data is a character or figure (line image) (column 5, lines 55-60 of Kanno).

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Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform error diffusion based the image region being a character or figure region, as taught by Kanno. The motivation for doing so would have been to preserve the resolution of the characters and/or lines of the figures (column 5, lines 58-60 of Kanno). Therefore, it would have been obvious to combine Kanno with Sakai to obtain the invention as specified in claim 11.

**Regarding claim 15:** Sakai discloses that said second pixel density converting means makes a converting method different in accordance with attributes of said flag data (column 8, lines 52-57 of Sakai).

5. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810), Harrington (US Patent 5,953,464), Seki (US Patent 5,838,839), and Okubo (US Patent 5,392,137).

**Regarding claim 2:** Sakai discloses that said flag data is a character flag indicative of a character image, and a figure flag indicative of a figure image (column 4, lines 49-54 of Sakai).

Sakai in view of Kanno, Harrington and Seki does not disclose expressly a mesh flag indicative of a mesh image.

Okubo discloses detecting whether or not a pixel is in a mesh image region (column 7, lines 26-29 of Okubo) and storing data indicating whether or not said pixel is in a mesh image region (column 7, lines 29-32 of Okubo).

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Sakai in view of Kanno, Harrington and Seki is combinable with Okubo because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an indicator corresponding to a mesh image region, as taught by Okubo, said indicator being a flag in the set of flag data taught by Sakai. The motivation for doing so would have been to correct for image artifact problems that affect a mesh image region of an image (column 2, lines 60-64 of Okubo). Therefore, it would have been obvious to combine Okubo with Sakai in view of Kanno, Harrington and Seki to obtain the invention as specified in claim 2.

**Regarding claim 3:** Sakai in view of Kanno, Harrington and Seki does not disclose expressly that when said flag data is a character flag, said output means performs a sharpness emphasis to said image data.

Okubo discloses that, for edges such as characters (column 10, lines 1-5 of Okubo), a filtering process is performed (column 9, lines 53-57 of Okubo), said filtering process being sharpness emphasis (column 4, lines 6-9 of Okubo).

Sakai in view of Kanno, Harrington and Seki is combinable with Okubo because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to sharpen character image data, as taught by Okubo. The motivation for doing so would have been to keep the outlines of small characters clear (column 10, lines 2-5 of Okubo). Therefore, it would have been obvious to combine Okubo with Sakai in view of Kanno, Harrington and Seki to obtain the invention as specified in claim 3.

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**Regarding claim 4:** Sakai in view of Kanno does not disclose expressly that, when said flag data is a mesh flag, said output means performs a low pass filter process to said image data.

Harrington discloses smoothing image data with a low pass filter (column 4, lines 47-50 of Harrington).

Sakai in view of Kanno is combinable with Harrington because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a low pass filter to smooth data, as taught by Harrington. The motivation for doing so would have been to produce a smoother effect for the image data (column 4, lines 49-50 of Harrington). Therefore, it would have been obvious to combine Harrington with Sakai in view of Kanno.

Sakai in view of Kanno, Harrington and Seki does not disclose expressly that, when said flag data is a mesh flag, said output means performs a low pass filter process to said image data.

Okubo discloses detecting whether or not a pixel is in a mesh image region (column 7, lines 26-29 of Okubo) and storing data indicating whether or not said pixel is in a mesh image region (column 7, lines 29-32 of Okubo). Further, Okubo teaches that mesh image regions can be processed through a smoothing filter (column 1, lines 46-49 of Okubo) to eliminate undesired characteristics (column 1, lines 38-42 of Okubo).

Sakai in view of Kanno, Harrington and Seki is combinable with Okubo because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary

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skill in the art to include an indicator corresponding to a mesh image region, as taught by Okubo, said indicator being a flag in the set of flag data taught by Sakai. Further, if said indicator indicates a mesh region, a smoothing filter is applied, as taught by Okubo, using the low-pass filter taught by Harrington as the specific type of smoothing filter. The motivation for doing so would have been to correct for image artifact problems that affect a mesh image region of an image (column 1, lines 38-42 of Okubo). Therefore, it would have been obvious to combine Okubo with Sakai in view of Kanno, Harrington and Seki to obtain the invention as specified in claim 4.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810), Harrington (US Patent 5,953,464), Seki (US Patent 5,838,839), and Ishikawa (US Patent 5,729,664).

**Regarding claim 12:** Sakai in view of Kanno, Harrington and Seki does not disclose expressly that said output means changes color conversion coefficients in accordance with the flag data and performs a color converting process of the image data.

Ishikawa discloses changing the color conversion coefficients (column 10, lines 29-35 of Ishikawa) in accordance with flag data (column 10, lines 18-23 of Ishikawa) and performing a color converting process of the image data (column 10, lines 47-52 of Ishikawa).

Sakai in view of Kanno, Harrington and Seki is combinable with Ishikawa because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform the color conversion processing of

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the image data in accordance with the flag data, as taught by Ishikawa. Since color conversion is performed to create the output, said color conversion would be performed by said output means. The motivation for doing so would have been to be able to convert between a plurality of different color spaces (column 3, lines 9-14 of Ishikawa), such as the color spaces for each different type of image data. Therefore, it would have been obvious to combine Ishikawa with Sakai in view of Kanno, Harrington and Seki to obtain the invention as specified in claim 12.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810), Harrington (US Patent 5,953,464), Seki (US Patent 5,838,839), and Sekine (US Patent 5,719,967).

**Regarding claim 14:** Sakai in view of Kanno, Harrington and Seki does not disclose expressly that, in the case where said input means inputs data described by a page description language from a computer, said generating means generates the flag data on the basis of attribute information of the page description language.

Sekine discloses using page description language for the image data (column 6, lines 56-57 of Sekine), detecting the attributes stored in said page description language (column 6, lines 56-60 of Sekine), and supplying said attributes to an image processing apparatus (column 6, lines 60-62 of Sekine).

Sakai in view of Kanno, Harrington and Seki is combinable with Sekine because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary

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skill in the art to use page description language as the input data and provide attribute data from the page description language data, as taught by Sekine, said attribute data being provided as the flag data taught by Sakai. The motivation for doing so would have been to be able to provide both the image data and the attribute data at once (column 6, lines 60-62 of Sekine), instead of having to compute the flag data from the image data. Therefore, it would have been obvious to combine Sekine with Sakai in view of Kanno, Harrington and Seki to obtain the invention as specified in claim 14.

8. Claims 16 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810).

**Regarding claims 16, 19 and 20:** Sakai discloses an image processing apparatus (figure 5 of Sakai). Further details of said apparatus are shown in figure 9 (column 3, lines 35-36 of Sakai), figures 24-26 (column 4, lines 7-14 of Sakai) and figure 32 of Sakai (column 4, lines 30-31 of Sakai).

Sakai further discloses input means (figure 32(65) and column 15, lines 13-17 of Sakai) for inputting image data (column 5, lines 27-30 of Sakai); means (figure 5(11) of Sakai) for obtaining flag data indicating an attribute (column 6, lines 15-18 of Sakai) of an image corresponding to the image data from the image data (figure 6 and column 6, lines 21-26 of Sakai); first pixel density converting means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the image data at a designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai); and second pixel density converting means (figure 32(61(portion)) and column 15, lines

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17-20 of Sakai) for pixel density converting the flag data in accordance with the designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai). The partial image, which includes the attribute (flag) data (figure 10C of Sakai), is displayed at a specified magnification (column 8, lines 57-62 of Sakai). Therefore, said flag data is converted in accordance with the designated magnification since said flag data is directly associated with said partial image data.

Sakai further discloses output means (figure 5(14) of Sakai) for making a process of the pixel density converted image data (column 5, lines 40-45 of Sakai) different every pixel in accordance with the flag data (column 5, lines 47-53 of Sakai) and outputting the processed image data (column 5, lines 40-41 of Sakai), wherein said second pixel density converting means makes a converting method different in accordance with attributes of the flag data (column 8, lines 55-62 of Sakai). The converting method will be different for different flag data, such as the partial image priority, since the reduction ratios for each partial image will be different depending on the value of said flag data (column 8, lines 55-62 of Sakai).

Said first pixel density converting means and said second pixel density converting means correspond to the respective portions of the physically embodied computer software, executed by the CPU (figure 32(61) and column 15, lines 17-20 of Sakai), that perform the functions of said first pixel density converting means and said second pixel density converting means.

Sakai does not disclose expressly that said flag data is generated by a generating means; and that said image data input is color image data.



Kanno discloses generating means (figure 1(10) of Kanno) for generating data indicative of the attribute of an image corresponding to the image data (column 6, lines 35-38 and lines 40-45 of Kanno); and that said image data is color image data (column 9, lines 51-54 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to process color image data and generate the data indicative of the attributes of an image, as taught by Kanno, said indicative data being the flag data taught by Sakai. The motivation for doing so would have been that the value of the parameter used to determine the feature of the image region can be used in determining the amount of correction required (column 6, lines 58-62 of Kanno). Therefore, it would have been obvious to combine Kanno with Sakai to obtain the invention as specified in claims 16, 19 and 20.

Further regarding claim 19: The apparatus of claim 16 performs the method of claim 19.

Further regarding claim 20: The apparatus of claim 16 performs processing using physically embodied computer software (column 15, lines 38-45 of Sakai) and thus performs the steps of the computer program of claim 20.

9. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810) and Frederic (US Patent 6,005,989).

**Regarding claims 21, 22 and 23:** Sakai discloses an image processing apparatus (figure 5 of Sakai). Further details of said apparatus are shown in figure 9 (column 3, lines 35-36 of

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Sakai), figures 24-26 (column 4, lines 7-14 of Sakai) and figure 32 of Sakai (column 4, lines 30-31 of Sakai).

Sakai further discloses input means (figure 32(65) and column 15, lines 13-17 of Sakai) for inputting image data (column 5, lines 27-30 of Sakai); means (figure 5(11) of Sakai) for obtaining flag data indicating an attribute (column 6, lines 15-18 of Sakai) of an image corresponding to the image data from the image data (figure 6 and column 6, lines 21-26 of Sakai); first pixel density converting means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the image data at a designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai); and second pixel density converting means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the flag data in accordance with the designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai). The partial image, which includes the attribute (flag) data (figure 10C of Sakai), is displayed at a specified magnification (column 8, lines 57-62 of Sakai). Therefore, said flag data is converted in accordance with the designated magnification since said flag data is directly associated with said partial image data.

Sakai further discloses output means (figure 5(14) of Sakai) for making a process of the pixel density converted image data (column 5, lines 40-45 of Sakai) different every pixel in accordance with the flag data (column 5, lines 47-53 of Sakai) and outputting the processed image data (column 5, lines 40-41 of Sakai).

Said first pixel density converting means and said second pixel density converting means correspond to the respective portions of the physically embodied computer software, executed

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by the CPU (figure 32(61) and column 15, lines 17-20 of Sakai), that perform the functions of said first pixel density converting means and said second pixel density converting means.

Sakai does not disclose expressly that said first pixel density converting means gives an offset to a start position of an output pixel position so that an output pixel value after pixel density converting the image data is generated by interpolation calculation between the neighboring adjacent pixels; that said flag data is generated by a generating means; and that said image data input is color image data.

Kanno discloses generating means (figure 1(10) of Kanno) for generating data indicative of the attribute of an image corresponding to the image data (column 6, lines 35-38 and lines 40-45 of Kanno); and that said image data is color image data (column 9, lines 51-54 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to process color image data and generate the data indicative of the attributes of an image, as taught by Kanno, said indicative data being the flag data taught by Sakai. The motivation for doing so would have been that the value of the parameter used to determine the feature of the image region can be used in determining the amount of correction required (column 6, lines 58-62 of Kanno). Therefore, it would have been obvious to combine Kanno with Sakai.

Sakai in view of Kanno does not disclose expressly that said first pixel density converting means gives an offset to a start position of an output pixel position so that an output pixel value after pixel density converting the image data is

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generated by interpolation calculation between the neighboring adjacent pixels.

Frederic discloses giving an offset  $(r_k, r_l)$  to a start position of an output pixel position  $(M_{k,l})$  (figure 2 and column 5, lines 27-32 of Frederic) so that an output pixel value after pixel density converting the image data is generated by interpolation calculation between the neighboring adjacent pixels (column 5, lines 32-38 of Frederic).

Sakai in view of Kanno is combinable with Frederic because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to increase the image resolution by giving an offset for the interpolated pixel and generating the pixel value by interpolating between the neighboring adjacent pixels, as taught by Frederic, using the first pixel density converting means taught by Sakai. The motivation for doing so would have been to be able to sample the image data at any intermediate position, thus restoring the nuances between adjacent original pixels (column 2, lines 14-18 of Frederic). Therefore, it would have been obvious to combine Frederic with Sakai in view of Kanno to obtain the invention as specified in claims 21, 22 and 23.

Further regarding claim 22: The apparatus of claim 21 performs the method of claim 22.

Further regarding claim 23: The apparatus of claim 21 performs processing using physically embodied computer software (column 15, lines 38-45 of Sakai) and thus performs the steps of the computer program of claim 23.

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**Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson  
Examiner  
Art Unit 2624



JAT  
31 May 2005

THOMAS D.  
LEE  
PRIMARY EXAMINER